

- N.B. :** (1) Question No. 1 is compulsory.
 (2) Answer any four from the remaining six questions.
 (3) Assume suitable data wherever necessary.
 (4) Figures to the right indicate full marks.

1. Write short notes on : 20
 - (a) Fluid flywheel & Torque converter.
 - (b) Principle of operation of overdrive.
 - (c) Explain Anti locking Braking system
 - (d) Types of Stub Axle
 - (e) Telescopic Shock Absorber
 - (f) Electronic Ignition system
 - (g) Materials for Body construction
2. (a) Define the following terms w. r. t steering Geometry :- 10
 - (i) Castor (ii) Camber (iii) Toe
 - (iv) King pin inclination (v) Combined Angle
- (b) Explain the various sources of vibration in vehicle and steps taken to minimize these vibration. What are it's effects on comfort human body? 10
3. (a) Discuss in brief on various types of batteries. Explain working of Lead Acid Battery. 10
- (b) Explain with neat sketch the importance of drivers seat. What are the basic parameters involved in design of drivers seat. 10
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4. (a) Short note on:- Knock sensor and Oxygen Sensor. 10
- (b) Discuss radial and cross ply tyres. Explain various factors affecting tyre life. 10
5. (a) Explain the working of Master Cylinder. What is tandem Master cylinder. 10
- (b) Write about the necessity and describe the working of differential. 10
6. (a) With neat sketch explain the construction, working, advantages and disadvantages of multi plate dry friction clutch. 10
- (b) With neat sketch explain working of constant mesh gear box (3 forward + 1 Reverse speed). 10
7. (a) Explain with sketch the working of Mac - Pearson structure type independent suspension. With its advantages & disadvantages. 10
- (b) Explain in detailed the working of ECM. 10